REALNETWORKS INVENTION DISCLOSURE FORM
ATTORNEY-CLIENT PRIVILEGED COMMUNICATION

DATE: ███████

It is important to provide accurate and detailed information on this form. The information will be used to evaluate your invention for possible filing as a patent application and is necessary to help us complete the application. When completed and signed, please return this form to Lisa Benner, **Legal Department**. If you have any questions, please call Steven Stewart, x6467.

1. Inventor: __Hug__ _____ __Joshua__ _____ __D__ _____
   Last Name   First Name   Middle Initial

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   Citizenship: _USA_____ Contractor: YES _____ NO _X_____

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   *Corporate Level Division (e.g. Media Systems) _Media Systems_____ Sub -Division _Client Dev Group___

   Supervisor* _Rahul Agarwal_____ Phone _206-674- 2359____ Location: _Seattle_____

   Inventor: _Hefta-Gaub_____ _Bradley_____ _D_____
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   Supervisor* _Martin Plaehn_____ Phone _____ Location: _Seattle_____

*If you are unsure of this information, please discuss with your manager.

(PROVIDE SAME INFORMATION AS ABOVE FOR EACH ADDITIONAL INVENTOR)

2. Title of Invention: _Method of expiring and renewing subscription media_____

3. Describe the technology/product/process (code name) the invention relates to (be specific if you can):
   _Portable music & media subscription devices._____

4. Include several key words to describe the technology area of the invention in addition to # 3 above: _DRM, Rights enforcement, secure transfer, portable devices, rights provisioning____

5. Stage of development (i.e. % complete, simulations done, alpha code if any, etc.): _Idea has been documented in slides, no code has been created nor has this been shared with an external party.___

   6. (a) Has a description of your invention been, or will it shortly be, published outside of Real Networks?

      NO: __X____ YES: _____ If YES, was the manuscript submitted to Legal for pre-publication approval? _____

      IDENTIFY THE PUBLICATION AND THE DATE PUBLISHED (TO BE PUBLISHED): _____

   (b) Has your invention been used/sold or planned to be used/sold by Real Networks or others?

      NO: __X____ YES: _____ DATE WAS OR WILL BE SOLD: _____

   (c) Does this invention relate to technology that is or will be covered by a SIG (special interest group)/standard/ or specification?

NO: _____ YES: ___X___ Name of SIG/Standard/Specification: _Future Open mobile alliance DRM standards... (not currently in scope, but after we demonstrate I assume they will jump all over this.)_

 (d) If the invention is software, actual or anticipated date of any beta tests outside RealNetworks: _Late Summer/Fall 2003_

7. Was the invention conceived or constructed in collaboration with anyone other than a RealNetworks employee or in performance of a project involving entities other than RealNetworks, e.g. government, other companies, universities or consortia?

 NO: ___X___ YES: _____ Name of individual or entity: _____

8. Is this invention related to any other invention disclosure that you or anyone else has recently submitted? If so, please give the title and inventors names: _No._

PLEASE READ AND FOLLOW THE DIRECTIONS ON
HOW TO WRITE A DESCRIPTION OF YOUR INVENTION

Attach a description of the invention to this form, DATED AND SIGNED BY AT LEAST ONE PERSON WHO IS NOT A NAMED INVENTOR, and include the following information:

 1. **Describe in detail what the components of the invention are and how the invention works.**

 2. **Describe advantage(s) of your invention over what is done now. (E.g. What problems does it solve, if any?)**

 3. **YOU MUST include at least one figure illustrating the invention. If the invention relates to software, include a flowchart or pseudo-code representation of the algorithm.**

 4. **Value of your invention to RealNetworks (how will or could it be used?).**

 5. **Explain how your invention is novel. If the technology itself is not new, explain what makes it different.**

 6. **Identify the closest or most pertinent prior art that you are aware of from RealNetworks or anyone else.**

 7. **Who is likely to want to use this invention or infringe the patent if one is obtained and how would infringement be detected?**

*HAVE YOUR SUPERVISOR READ, DATE AND SIGN COMPLETED FORM

DATE: _____ SUPERVISOR: _____

BY THIS SIGNING, I (SUPERVISOR) ACKNOWLEDGE THAT I HAVE READ AND UNDERSTAND THIS
DISCLOSURE

1.   Describe in detail what the components of the invention are and how the invention works.

This invention applies the concept of a rechargeable battery to Digital Media Expiration. Expiring content in an acceptable manor is a very hard problem. This invention creates a simple yet highly effective solution to this problem.

There are two primary actors involved in this invention, (a) device (b) digital media service (DMS). An optional actor (c) is a pass through intermediary device (ie a Personal computer).

Linking the actors is a communication protocol. These Actors have been linked together in prior art. This invention focuses on the goal of the communication protocol these actors communicate through. Prior art has tried to transfer actual rights information from a DMS to a device. This has proven, (a) hard to define in a secure manor, (b) hard to create devices with the required components (c) expensive (d) a complicated user experience.

This invention removes the need of a DMS to provision rights to a device. Instead, a simple recharge command is all that needs to be transmitted. Device's will be manufactured/upgraded to contain an intrinsic set of rights they know how to enforce. Those rights will never change, and will always be enforced when a device consumes content.

Our invention is to create devices with set rights already in the devices. When these rights are used up, the device will require users to recharge their rights. The DMS will simply need to generate a refresh token for the device they want to recharge.

The most common and maybe the only set of rights that a device will acknowledge will be playback time. Again this is related to the idea of using a battery for digital rights expiration. Devices will be created with a pre-determined number of allowed playback hours. After that time has passed, the devices will refuse to play content until they are re-charged. Recharging a device can be a very simple straightforward process for all actors involved.

The following flow is imagined:

- Obtain a new device
- Register device with a DMS
- DMS sends a recharge token to the device
    - Numerous protocols are possible some of which are claims of this invention
    - Any communication medium should be usable: WiFi, WAN, GPRS, Lan, USB, 1394, SMS, MMS etc.
- Freely transfer subscription media to devices.
    - No protocol is required
    - Again any communication medium, examples are: WiFi, WAN, GPRS, Lan, USB, 1394, etc.
- Play the media consuming the intrinsic rights the device has

- At some point either automatically or at the users request, the device will be issued a refresh token.
- If the user refuses to refresh/recharge their device, does not connect their device to a DMS, cancels their subscription to their DMS, hard re-sets their device, etc, The device will refuse to playback the user's subscription content. Users will understand this because the device will behave as if the battery has run out on their device.

Protocol claims:
Numerous methods can be imagined to transfer a refresh command to a device. The protocol must ensure it cannot be re-played by a man in the middle. The DMS must be able to authenticate the identity of the device. The device must authenticate a valid DMS is re-charging/refreshing their rights.
This could be accomplished via:
- A shared secrete between the DMS & device
- A bi-directional public/private key exchange between the DMS & device
- A one-way public-key/certificate exchange between the DMS and the device.
- Or a one-way public-key/certificate exchange between the device and DMS.
- A symmetric key exchange protocol between the DMS and the device.
- The protocols above but replacing the DMS with an intermediary device (ie a PC).
- Any other protocol that full-fills the requirements listed above.

2. Describe advantage(s) of your invention over what is done now. (E.g. What problems does it solve, if any?)

This invention has numerous advantages over what is done now.

This invention greatly reduces the engineering requirements and BOM required to create secure subscription devices. Thus in the end lowering the cost users will have to pay for these devices and increasing the profit margin for manufactures of subscription devices. Currently the industry is focused on building secure clocks into secure devices. Some companies have been pushing this for a LONG time but the engineering problems have been significant. Solutions have been proposed, but they have been slow to become accepted by device manufactures because they have required devices to be manufactured with secure clocks. Secure clocks have been VERY slow to become accepted because of their impact to the BOM.

This invention simplifies life greatly for users. This is the core advantage. After the production and engineering problems are eventually solved which they are close to being solved, an even larger problem looms on the horizon. The focus has been on putting a drm on the device instead of creating a usable device. Users are not going to like or understand the idea that they have clock restrictions instead of usage restrictions on their media consumption. This invention though, uses a model that users understand, are familiar with and have already accepted.

3. YOU MUST include at least one figure illustrating the invention. If the invention relates to software, include a flowchart or pseudo-code representation of the algorithm.

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4. Value of your invention to RealNetworks (how will or could it be used?).

We will use this invention to partner with device manufactures and create the subscription service of the future. We can lock others out of using similar usable technology and give our subscription services a huge competitive edge.

5. Explain how your invention is novel. If the technology itself is not new, explain what makes it different.

No rights are transferred from the DMA to the device. Instead a simple refresh message is transferred and Devices are created in a less general but more single purposed format.

6. Identify the closest or most pertinent prior art that you are aware of from RealNetworks or anyone else.

Microsoft's PD protocol. See novelty of our approach for differentiation. Prior work we have done with Portable devices has centered on the idea of transferring rights.

Sony OMG, again they rely on a clock on their devices to expire content.

One-way protocols used to bind content to a device. No expiration of content is done on devices thus these protocols are not useful for subscription services that require content to expire at some point in the future.

Who is likely to want to use this invention or infringe the patent if one is obtained and how would infringement be detected?
Microsoft, Pressplay, music match, apple. Infringement should be easily detectable.